

AD-A023 165

SPECIAL DATA COLLECTION SYSTEM (SDCS) EVENT  
REPORT, CENTRAL MID-ATLANTIC RIDGE, 7 OCTOBER 1975

K. J. Hill, et al

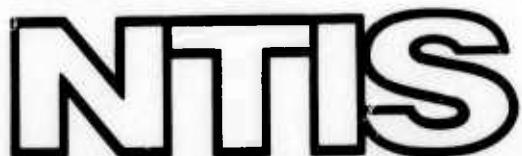
Teledyne Geotech

Prepared for:

Defense Advanced Research Projects Agency

6 January 1976

DISTRIBUTED BY:



National Technical Information Service  
U. S. DEPARTMENT OF COMMERCE

ADA023165

112035

SDCS-ER-75-49

6

**SPECIAL DATA COLLECTION SYSTEM EVENT REPORT**  
**Central Mid-Atlantic Ridge, 7 October 1975**

**K.J. Hill, M.S. Dawkins, and R.R. Baumstark**  
**Alexandria Laboratories**

**Teledyne Geotech, 314 Montgomery Street, Alexandria, Virginia 22314**

**January 1976**

**APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.**

**Sponsored By**  
**The Defense Advanced Research Projects Agency**  
**Nuclear Monitoring Research Office**  
**1400 Wilson Boulevard, Arlington, Virginia 22209**  
**ARPA Order No. 2897**

**Monitored By**  
**VELA Seismological Center**  
**312 Montgomery Street, Alexandria, Virginia 22314**

**REPRODUCED BY**  
**NATIONAL TECHNICAL**  
**INFORMATION SERVICE**  
**U. S. DEPARTMENT OF COMMERCE**  
**SPRINGFIELD, VA. 22161**

D D C  
DECLASSIFIED  
APR 19 1976  
REFUGEE  
A

Disclaimer: Neither the Defense Advanced Research Projects Agency nor the Air Force Technical Applications Center will be responsible for information contained herein which has been supplied by other organizations or contractors, and this document is subject to later revision as may be necessary. The views and conclusions presented are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the Defense Advanced Research Projects Agency, the Air Force Technical Applications Center, or the US Government.

## Unclassified

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1 REPORT NUMBER SDCS-ER-75-49	2 GOVT ACCESSION NO.	3 RECIPIENT'S CATALOG NUMBER
4 TITLE (or Subtitle) SPECIAL DATA COLLECTION SYSTEM (SDCS) Central Mid-Atlantic Ridge, 7 October 1975		5 TYPE OF REPORT & PERIOD COVERED Technical
7 AUTHOR(s) Hill, K. J., Dawkins, M. S., and Baumstark, R. R.		6 PERFORMING ORG. REPORT NUMBER F08606-74-C-0013
9 PERFORMING ORGANIZATION NAME AND ADDRESS Teledyne Geotech 314 Montgomery Street Alexandria, Virginia 22314		10 PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS T/4703
11 CONTROLLING OFFICE NAME AND ADDRESS Defense Advanced Research Projects Agency Nuclear Monitoring Research Office 1400 Wilson Blvd.-Arlington, Virginia 22314		12 REPORT DATE 6 January 1976
14 MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) VELA Seismological Center 312 Montgomery Street Alexandria, Virginia 22341		13 NUMBER OF PAGES 19
16 DISTRIBUTION STATEMENT (of this Report)  APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED.		15 SECURITY CLASS. (of this report) Unclassified
17 DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18 SUPPLEMENTARY NOTES		
19 KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20 ABSTRACT (Continue on reverse side if necessary and identify by block number)		

1

SDCS EVENT REPORT NO. 49

Central Mid-Atlantic Ridge, 7 October 1975

This event report contains seismic data from the Special Data Collection System (SDCS), and other sources for the above event. Published epicenter information from seismic observations is:

	"P" Arrival	Origin Time	Lat.	Long.	$m_b$	$M_s$
NORSAR	08:38:56.6	08:28:18	01 N	025 W	5.8	N/A
Hagfors	08:38:58.7	08:28:06	02 S	020 W	6.3	6.6

Using SDCS stations, LASA and NORSAR, the epicenter location and magnitudes become

08:28:08.5 01.2N 026.8W 5.8 5.8

All SDCS stations were operational during this period.

Short-period signals associated with this event were recorded at all SDCS stations, LASA and NORSAR. Horizontal SP channels at all SDCS stations were rotated.

Long-period signals were recorded at all SDCS stations, ALPA, LASA, and NORSAR. Horizontal LP channels at RK-ON were rotated. At WH2YK, CPSO and FN-WV horizontal LP channels were not rotated due to signal clipping. Rotation of the horizontal LP channels at HN-ME could not be accomplished because of unknown operating gains of all the LP channels and signal clipping. The arrival of the LQ phase at RK-ON appears on the LP radial channel; no explanation can be made for this occurrence and validity is therefore questionable. LASA long-period array data recovery is limited by the number of data points on the source tape. Validity of the ALPA and NORSAR long-period vertical beams is uncertain and horizontal beams were not included because of program recovery problems.

Scaling factors on plots are millimicrons at 1 Hz (not corrected for instrument response) with the exception of LASA and NORSAR short-period plots. LASA SP scaling factors are millimicrons per inch. Scaling factors are not reported for NORSAR short-period.

## STATION DESCRIPTION

SITE CODE	LOCATION	SITE COORDINATES			ELEVATION METERS	INSTRUMENTATION	
		DEG	MN	SECS		SHORT-PERIOD	LONG-PERIOD
ALPA	Alaska	65	14	00.0	N	626	None
		147	44	36.0	W		31300
CPSO	McMinnville, Tennessee	35	35	41.4	N	574	6480 V 7515 H
		085	34	13.5	W		SL210 V SL220 H
FN-WV	Franklin, West Virginia	38	32	58.0	N	910	KS36000
		079	30	47.0	W		KS36000
LASA	Billings, Montana	46	41	19.0	N	744	HS10
		106	13	20.0	W		7505A V 8700C H
HN-ME	Houlton, Maine	46	09	45.0	N	213	18300
63		067	59	09.0	W		SL210 V SL220 H
NORSAR	Kjeller, Norway	60	49	25.4	N	379	HS10
		010	49	56.5	E		7505A V 8700C H
RK-ON	Red Lake, Ontario	50	50	20.0	N	366	18300
		093	40	20.0	W		SL210 V SL220 H
WH2YK	White Horse, Yukon	60	41	41.0	N	855	18300
		154	58	02.0	W		SL210 V SL220 H

Note: The orientation of the radial instruments at FN-WV is assumed to be  $316^\circ + 5^\circ$  based on empirical data (event recordings). Rotation, where performed, is referenced to this azimuth and may be questionable.

HYPOCENTER DETERMINATION

INPUT FOR EVENT                    7 OCT 75  
 08:28:18.0    2.000N    26.000W    0RM.

STA.	ARRIVAL	CAIC	RESIDUALS	DIST.	AZ.
			REST	REST	REST
HN-MZ	08 37 57.4	-0.0	-0.7	57.4	327.1
PN-WV	08 38 22.6	0.7	1.1	60.8	314.4
CFC	08 38 45.1	-0.4	0.6	64.2	309.3
NAO	08 38 56.6	-0.0	0.5	66.0	19.1
FR-CN	08 39 47.8	-0.5	-1.0	74.6	322.8
LAC	08 40 29.1	-0.0	-0.0	81.8	316.9
WH2YR	08 41 44.5	0.3	-0.4	97.7	331.8

67 HERRIN TRAVEL TIME TABLES

CSIGIN	LAT.	LCNG.	DEPTH (KM)	SDV	IT	STA
08:28:57.8	3.032N	27.302W	363. CAIC	0.4	8	7
08:28:08.5	1.220N	26.850W	0. REST	0.8	3	7

CAIC	REST
1 . 1	1 . 1
5 . 0	5 . 0
0 0. 0 0	0 0. 0 0
0 0. 0 0	0 0. 0 0
0 . 0	0 . 0
0 . 0	0 . 0

CHI2 COVERAGE ELLIPSE: 95 PER CENT CONF. LEVEL, SDV= 0.95  
 MAJOR 141.3KM. MINOR 42.1KM. AZ= 168 AREA= 18703 SQ.KM. REST

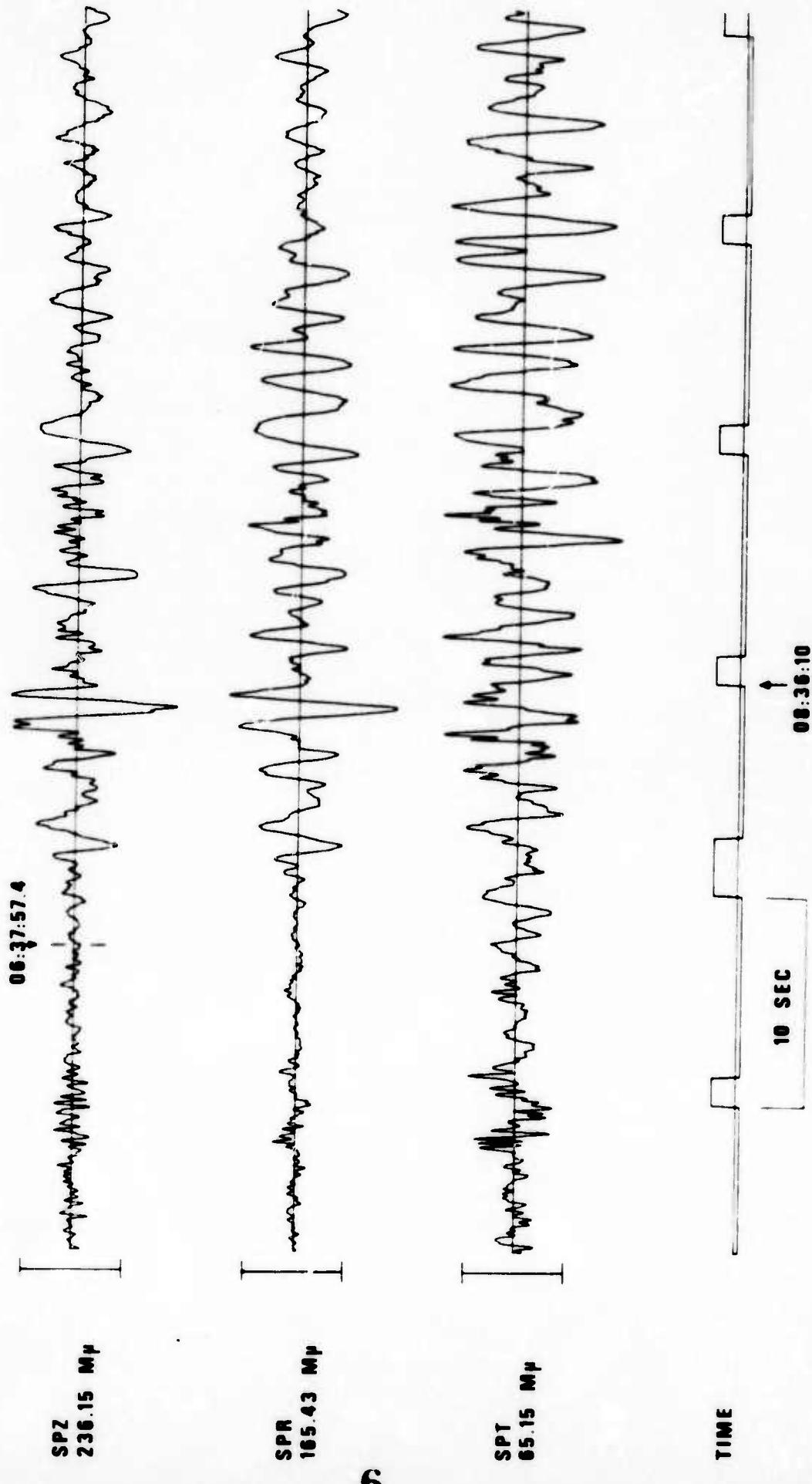
## DATA SUMMARY

INPUT FOR EVENT                    7 OCT 75  
 08:28:18.0    2.000N    26.000W    0KM.

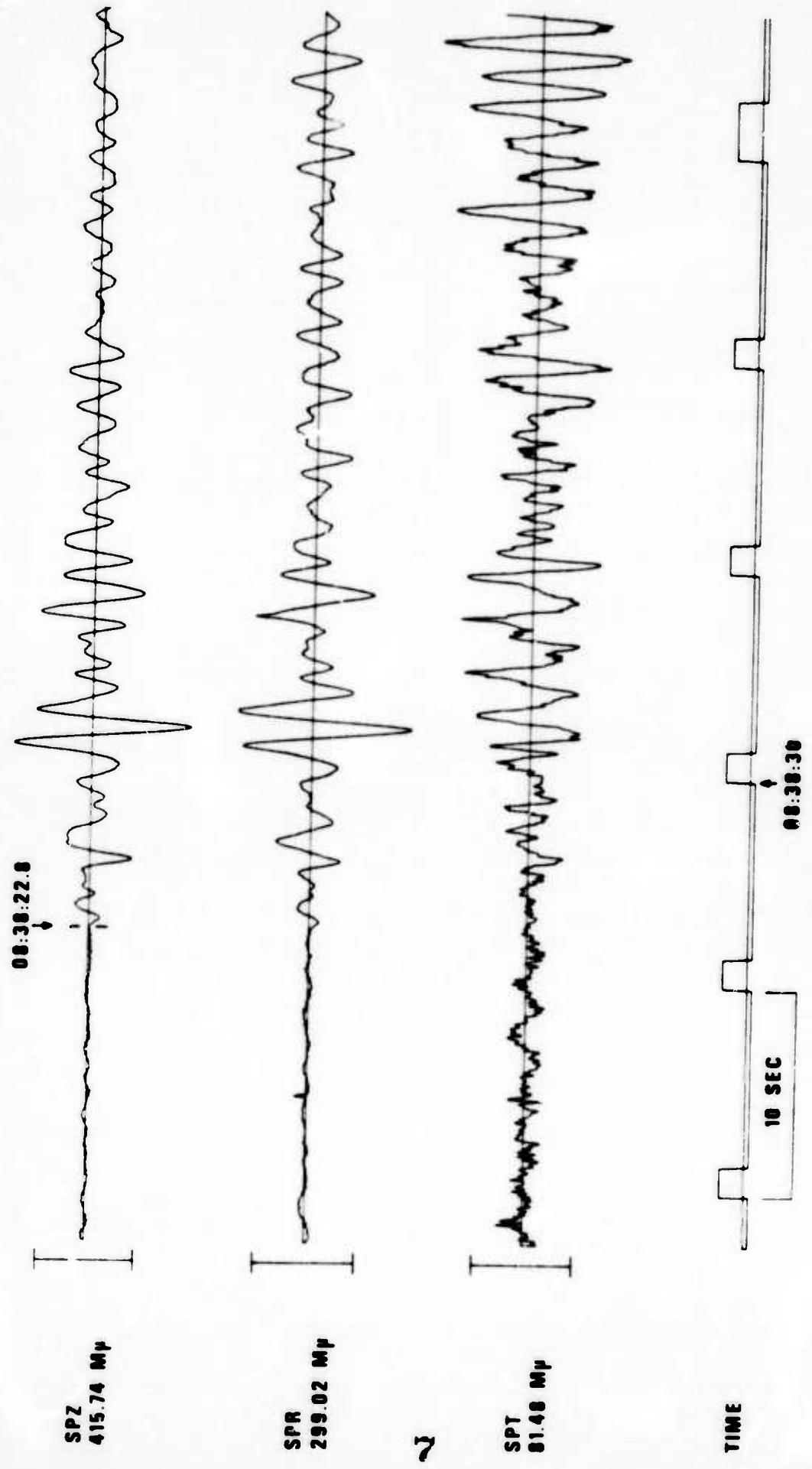
STA.	PHASE	ARRIVAL			INST	PER	A/T	MAGNITUDE			DIST
		TIME	HR	MIN				ME	MS	DIF	
HN-ME	EP	08	37	57.4	SPZ	5.5	51.	5.21			57.4
HN-ME	LQ	08	52	23.0	LPT	33.0	??				
HN-ME	LR	08	56	48.0	LPZ	23.0	9999.		0.0		57.4
FN-WV	EP	08	38	22.6	SPZ	1.2	140.	5.72			60.8
CPC	EP	08	38	45.1	SPZ	1.3	281.	6.15			64.2
NAC	EP	08	38	56.6	AB	1.3	342.	6.24			66.0
RK-CN	EP	08	39	47.8	SPZ	1.1	97.	5.49			74.6
RK-CN	LQ	09	00	56.0	LPR	33.0	1543.				
RK-CN	LR	09	06	30.0	LPZ	23.0	9999.		0.0		74.6
IAC	EP	08	40	29.1	AB	0.7	550.	6.32			81.8
WBZYK	EP	08	41	44.5	SPZ	1.5	10.	5.17			97.7
ALPA	LR	09	23	03.0	LPZ	22.0	517.	5.84			101.4

CRIGIN	IAT.	ICNG.	DEPTH (KM)	MAG	SDV	STA	IPMAG	LPSLV	IPSTA
08:28:57.8	3.032N	27.302W	363. CAIC	5.10	0.46	6	5.83*****		1
08:28:08.5	1.220N	26.850W	0. REST	5.76	0.49	7	5.84*****		1
IAC NOT USED IN CALC RUN SE AVG. MAG.									

HN-ME 07 OCT 75



FN-WV 07 OCT 75



CPSO 07 OCT 75

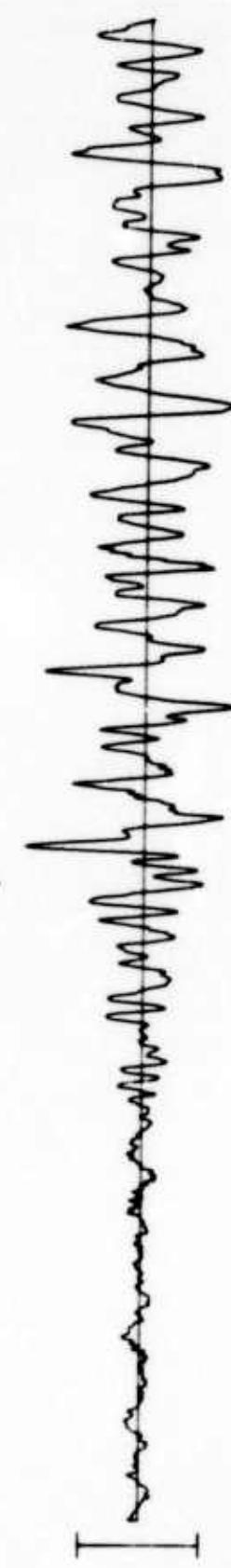
00:38:46:1



SPT  
00.38 MP



SPT  
105.50 MP

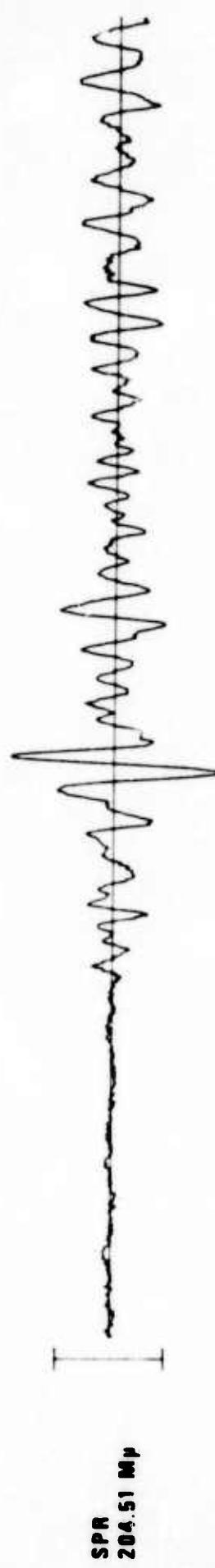
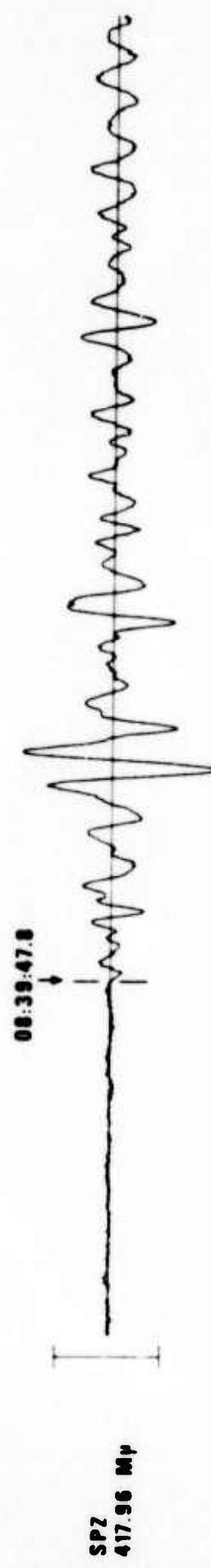


SPT  
50.00 MP

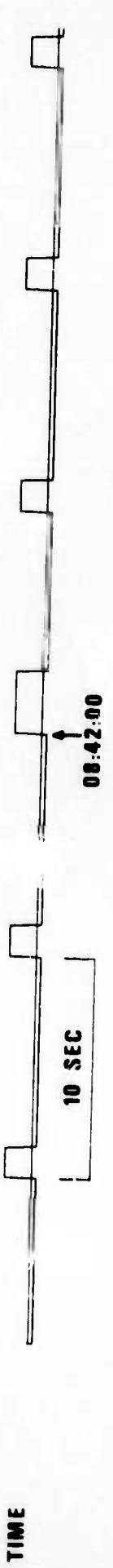
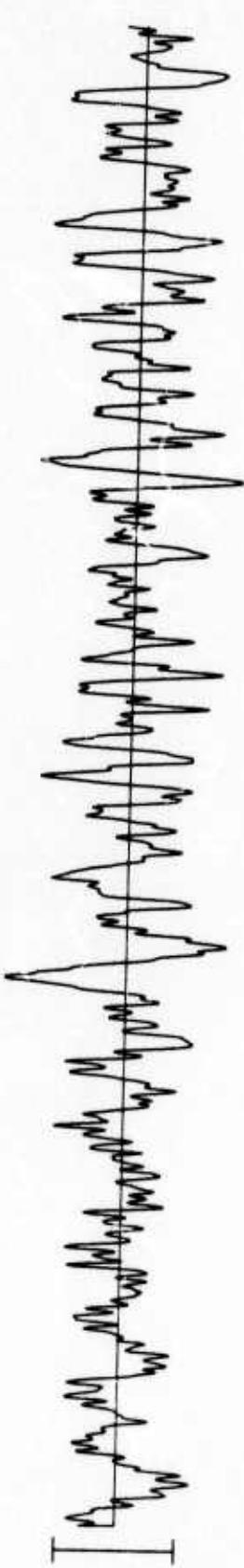
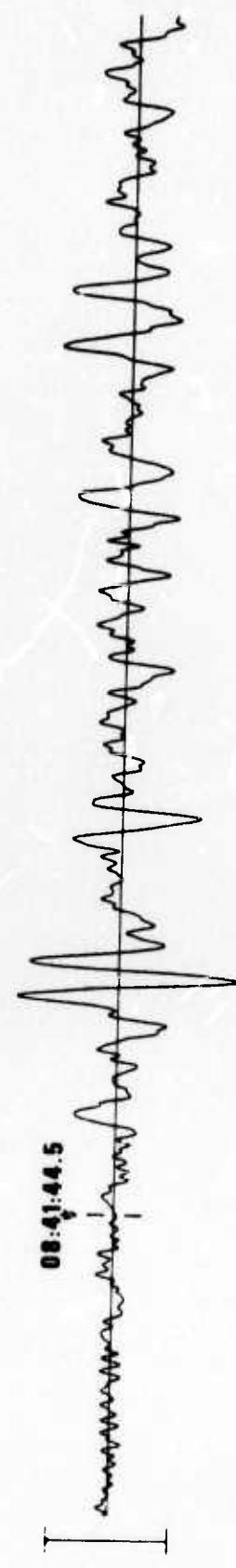


TIME

RK-ON 07 OCT 75



WH2YK 07 OCT 75



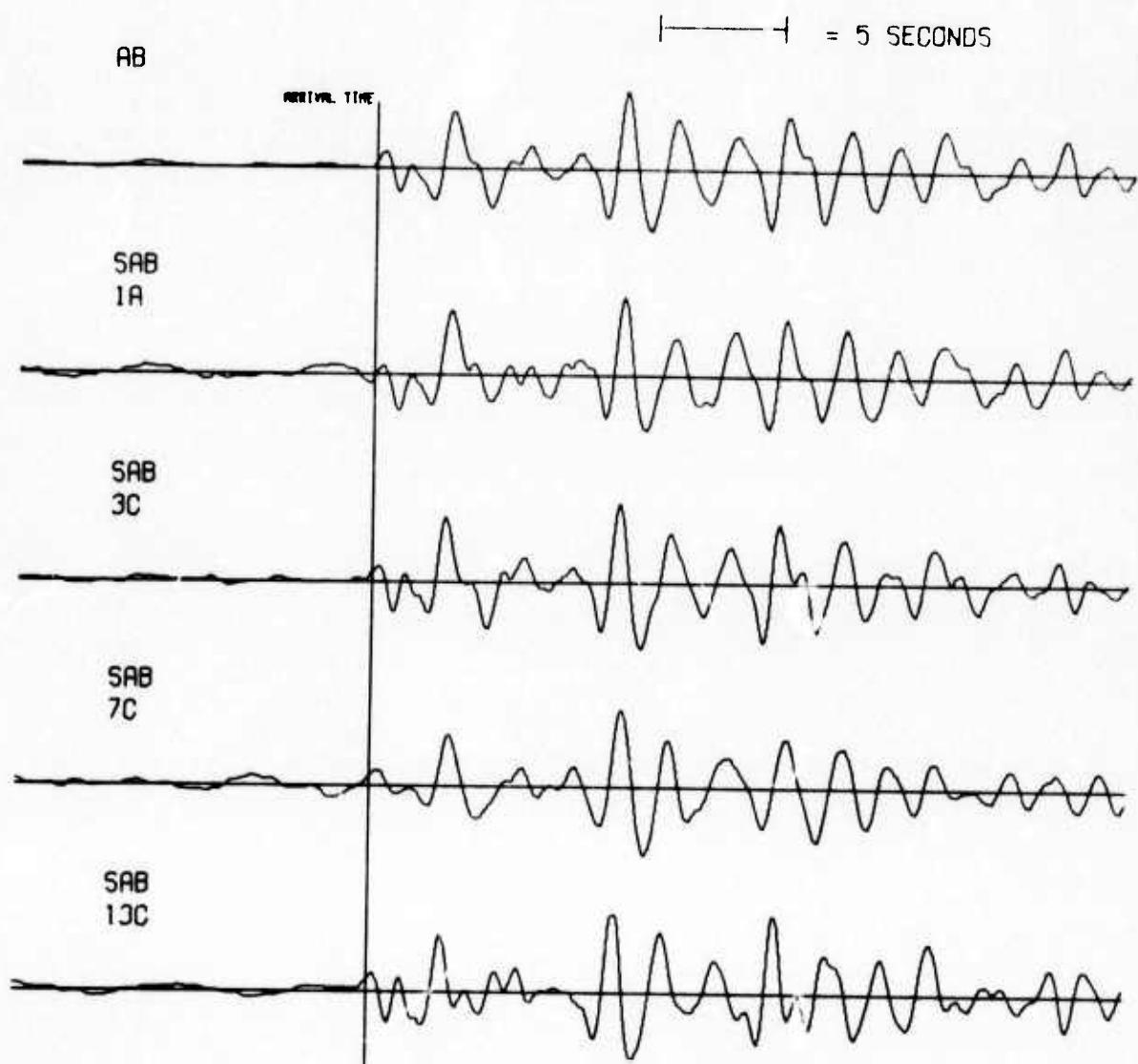
10

## NORSAR EVENT FILE

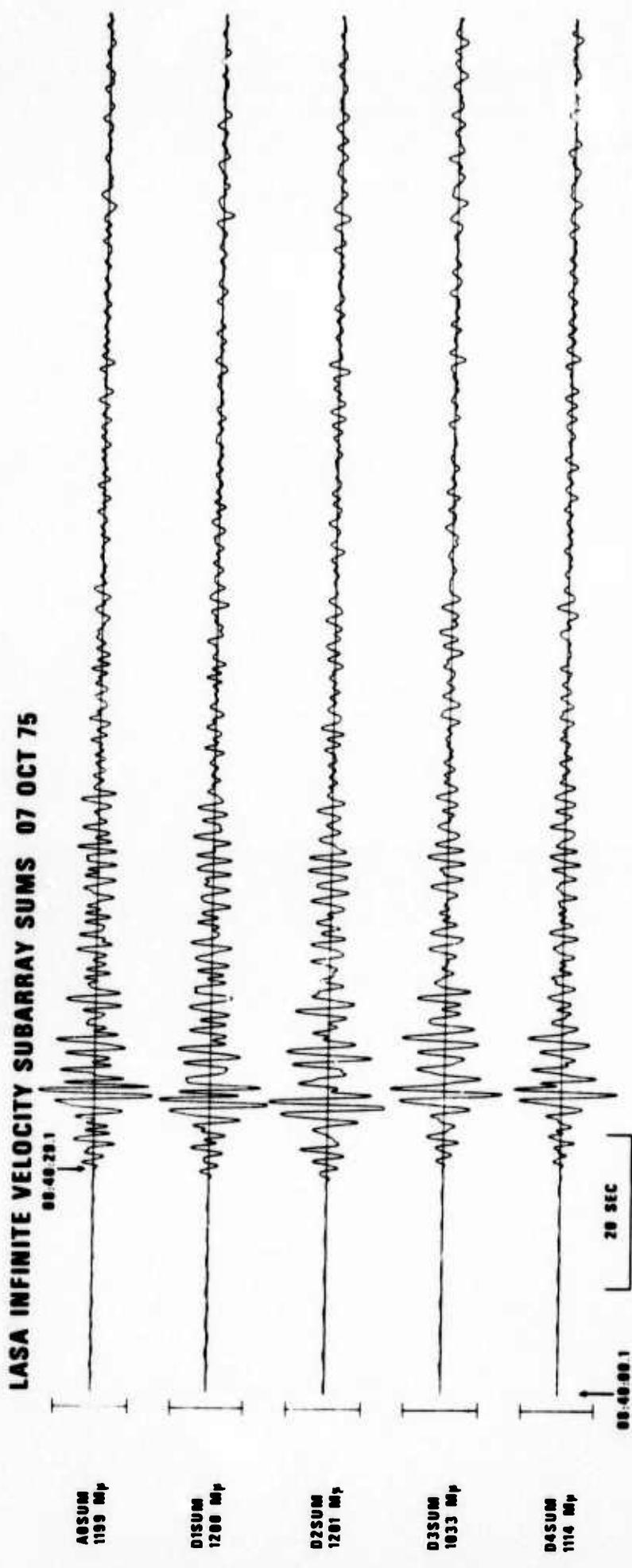
1975 OCT 7

EPX NO. 85750 ARR. 8.38.56.8 1.3N 25.2W 5.4MB 33KM

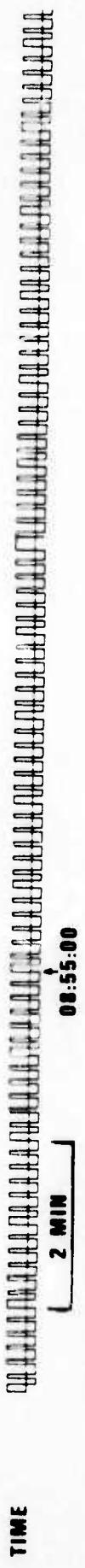
DIST = 65.4 AZI = 220.2 AMP = 66.5 PER = 1.4



12



• INVALID CALIBRATIONS



08:52:23



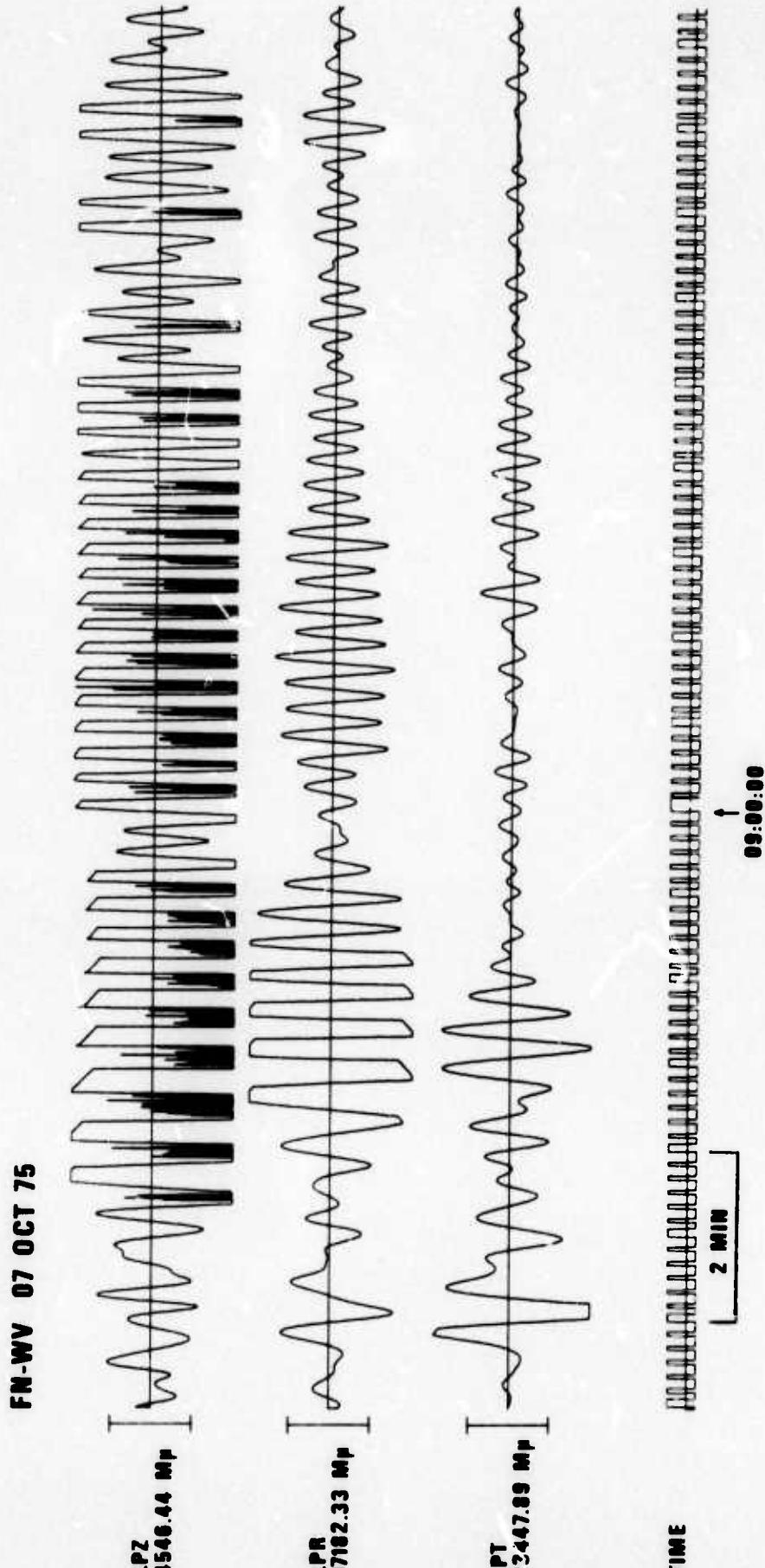
13 LPA UNKNOWN.



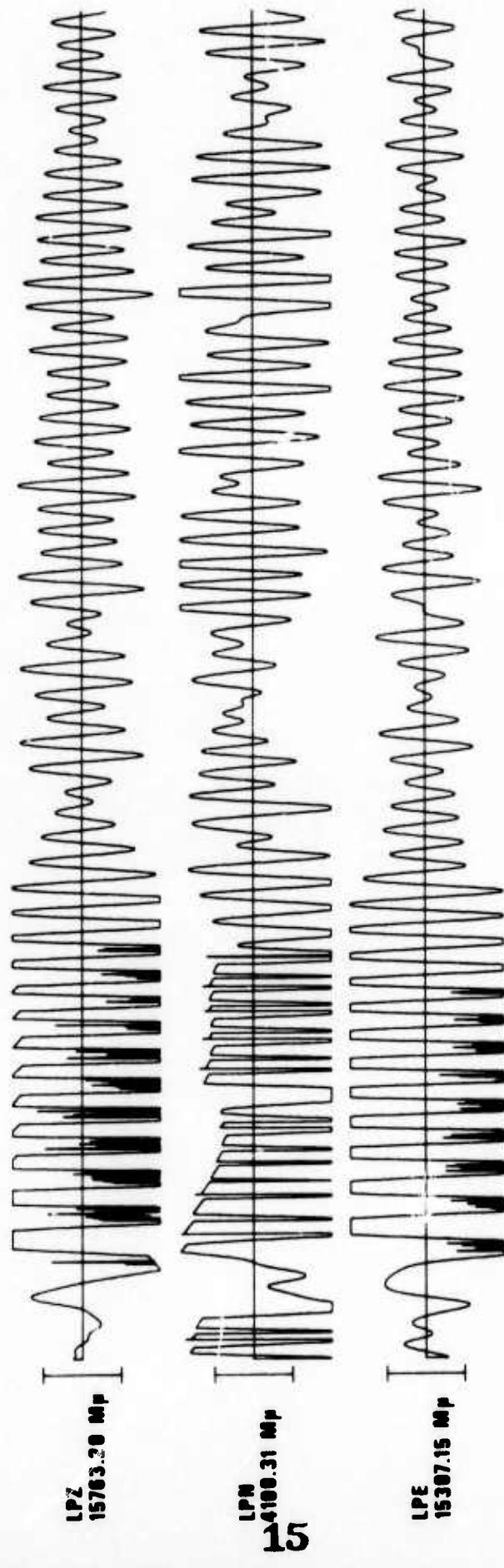
12 LPA UNKNOWN.

HN-ME 07 OCT 75

08:56:48



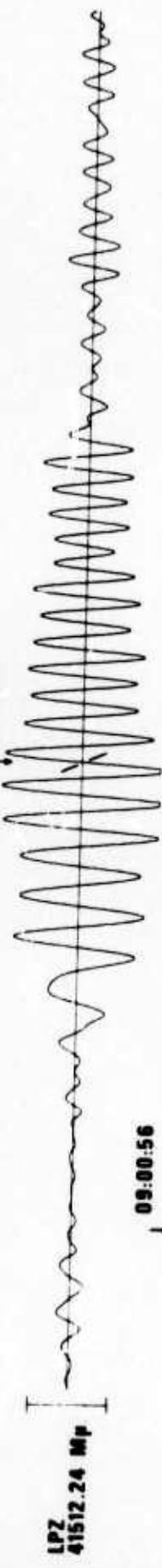
CPSO 07 OCT 75



TIME  
00:05:00 → 2 MIN

RK-ON 07 OCT 75

02:00:30

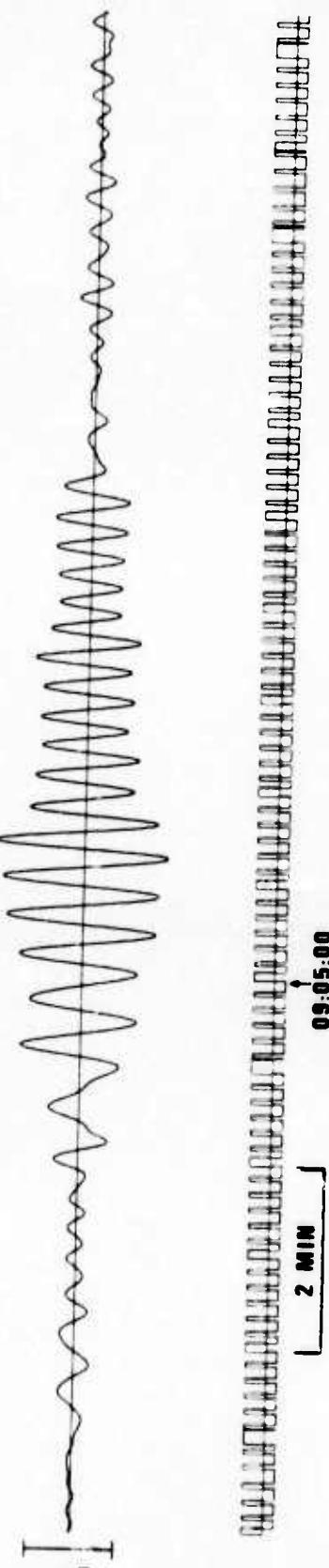


09:00:56



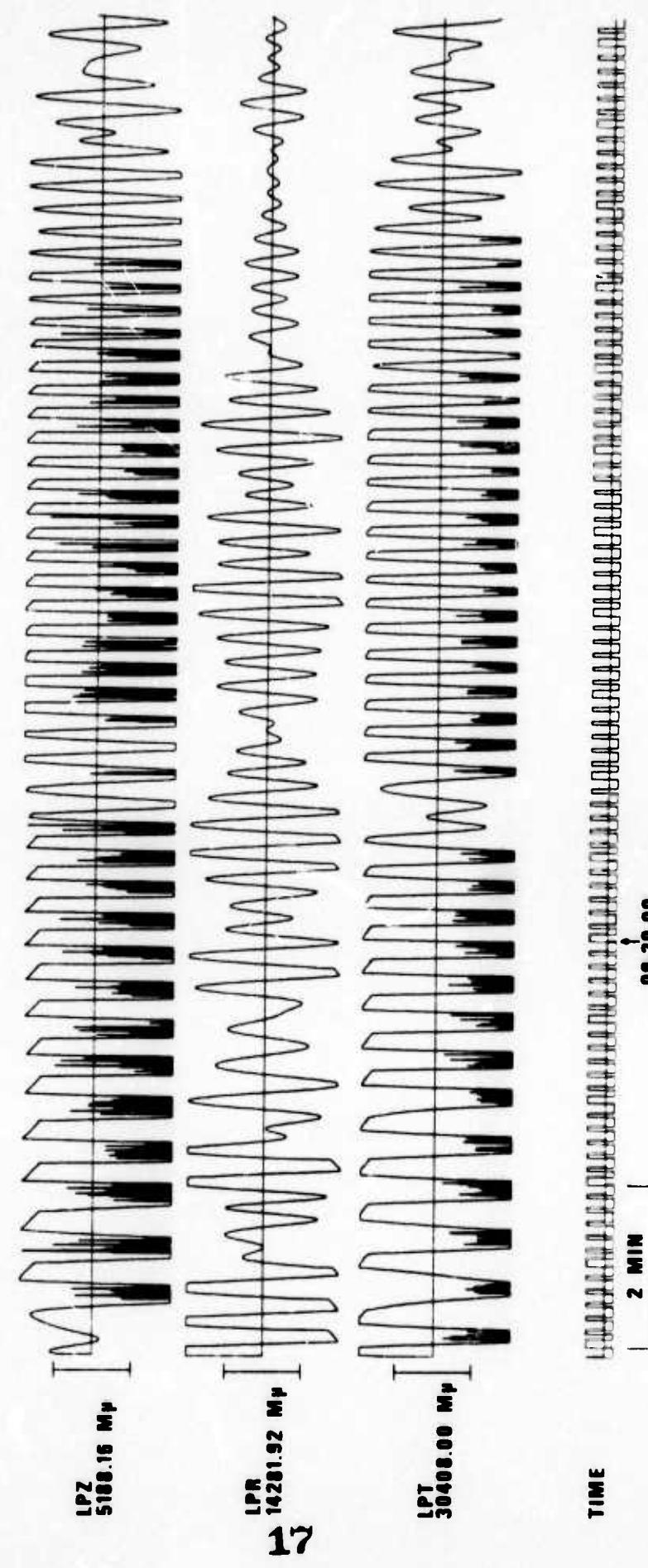
16

LPT  
34414.40 Hz  
21071.43 ms



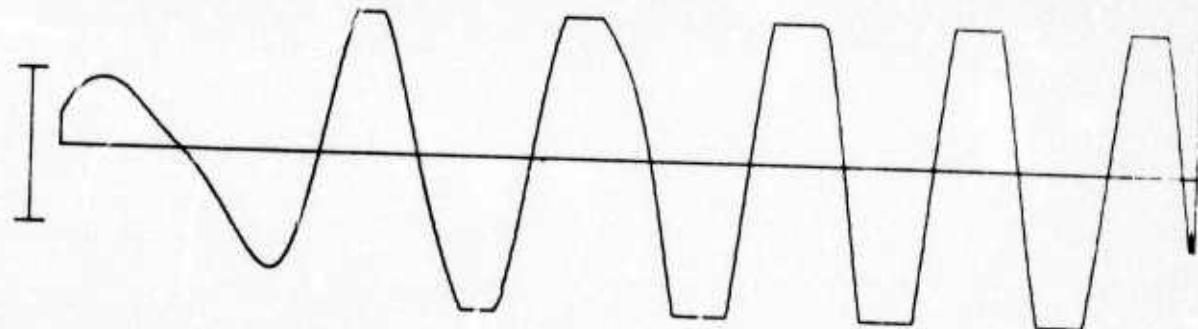
TIME

WH2YK 07 OCT 75

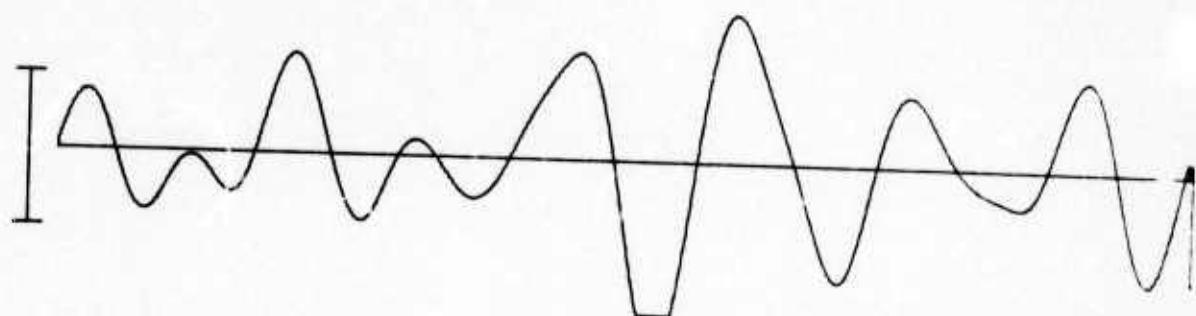


**LASA LONG PERIOD C4 SUBARRAY 07 OCT 75**

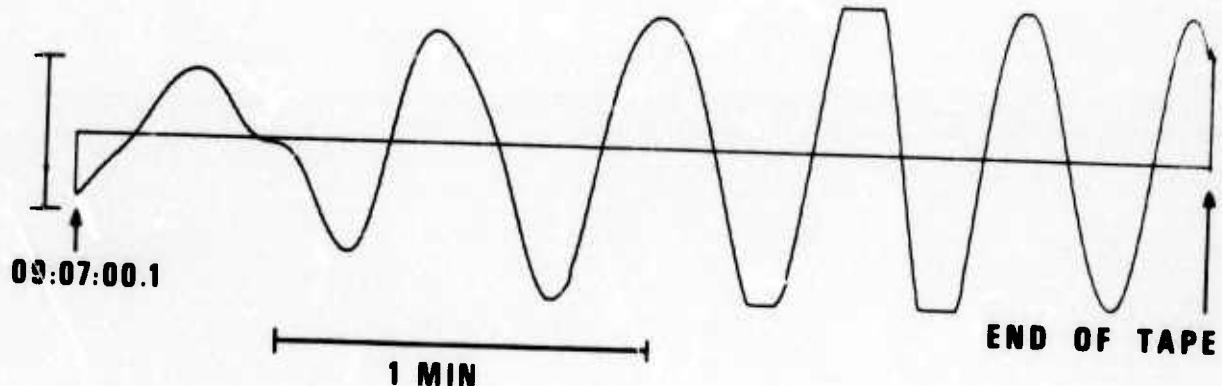
**C4LV**  
**42590.00 M $\mu$**



**C4LN**  
**40612.00 M $\mu$**

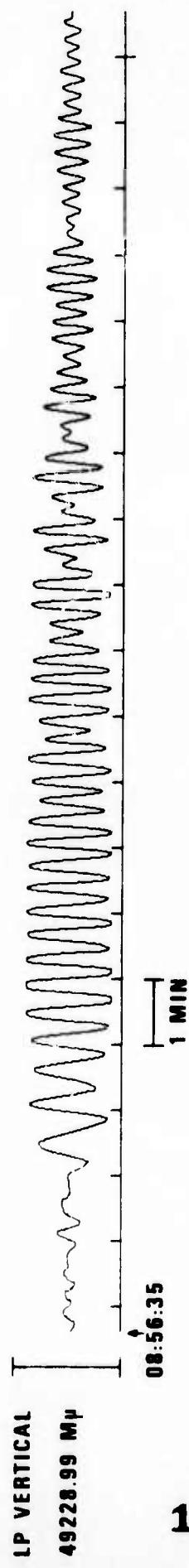


**C4LE**  
**41915.00 M $\mu$**



ARRAY LONG PERIOD VERTICAL BEAMS 07 OCT 75

NORSAR



19

ALPA

